Claims

What is Claimed is:

1. A method for detecting exposure of a cell to ultraviolet radiation, comprising measuring the levels of a plurality of RNA molecules in the cell for at least one time point after ultraviolet radiation exposure to establish a pattern of expression, the response of the cell to ultraviolet radiation exposure comprising at least one of the following:

(a) a first response comprising altered expression of at least one nucleic acid molecule encoding a transcription factor protein, at least one nucleic acid molecule encoding a signal transducing protein, and at least one nucleic acid molecule encoding a mitochondrial protein;

(b) a second response comprising altered expression of at least one nucleic acid molecule encoding a secreted growth factor, at least one nucleic acid molecule encoding a cytokine, and at least one nucleic acid molecule encoding a chemokine; and

(c) a third response comprising altered expression of at leastone nucleic acid molecule encoding an actin-binding protein, at least one nucleic acid molecule encoding a desmosomal protein, and at least one nucleic acid molecule encoding a tubulin protein; and

wherein if the pattern of expression for the cell is substantially similar to the response of the cell to ultraviolet radiation, the cell was exposed to ultraviolet radiation.

2. The method according to Claim 1, wherein the pattern consists of the first response.

3. The method according to Claim 1, wherein the pattern consists of the second response.

4. The method according to Claim 1, wherein the pattern consists of the third response.

5. The method according to Claim 1, wherein the pattern consists of the first response and the second response.

6. The method according to Claim 1, wherein the pattern consists of the first response and the third response.

7. The method according to Claim 1, wherein the pattern consists of the second response and the third response.

8. The method according to Claim 1, wherein the pattern consists of the first response, the second response, and the third response.

9. The method according to Claim 1, wherein the cell is selected from the group consisting of a keratinocyte, a Langerhans cell, a melanocyte, and a fibroblast cell.

10. The method according to Claim 1, wherein the ultraviolet radiation exposure comprises energy at a wavelength in the range of about 220 nm to about 440 nm.

11. The method according to Claim 10, wherein the ultraviolet radiation exposure comprises energy at a wavelength of about 290 nm to about 320 nm.

12. The method according to Claim 10, wherein the ultraviolet radiation exposure comprises energy at a wavelength of about 320 to about 440 nm.

13. The method according to Claim 10, wherein the ultraviolet radiation exposure comprises a total energy exposure in the range of about 0.2 mJ/cm^2 to about 40 mJ/cm^2.

14. The method according to Claim 1, wherein the pattern further comprises the first response being from about 0.5 hours to about two hours post-exposure to ultraviolet radiation.

15. The method according to Claim 1, wherein the pattern further comprises the second response being from about four hours to about eight hours post-exposure to ultraviolet radiation.

16. The method according to Claim 1, wherein the pattern further comprises the third response being from about sixteen hours to about twenty-four hours post-exposure to ultraviolet radiation.

17. The method according to Claim 1, wherein the pattern is further characterized by:

(a) the first response occurring from about 05 to about two hours post exposure to ultraviolet radiation;

(b) the second response occurring from about four to about eight hours post exposure to ultraviolet radiation; and

(c) the third response occurring from about sixteen to about twenty-four hours postexposure to ultraviolet radiation.

18. The method according to Claim 1, wherein altered expression comprises an increase or decrease in RNA level.

19. The method according to Claim 1, wherein:

(a) the first response further comprises altered expression of at least three nucleic acid molecules, each one being at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,
(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,
(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,
(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,
(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,

(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,
(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,
(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,
(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response further comprises altered expression of at least three nucleic acid molecules, each one being at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M57731 Human gro-beta mRNA, complete cds,

(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,
(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,
(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,
(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,

(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),
(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,
(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,
(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,

(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,
(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,
(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,

(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf, 114; and

(c) the third response further comprises altered expression of at least three nucleic acid molecules, each one being at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,
(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,

(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,
(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,
(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,
(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,

(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,
(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,
(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,
(lvii) M92934 Human connective tissue growth factor, complete cds,
(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.
(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,

(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,
(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),
(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,
(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,
(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,
(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,

(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),
(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,
(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,
(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),
(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,
(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,

(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,
(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,
(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,
(cxl) U30999 Human (memc) mRNA, 3'UTR,
(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,
(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,

(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,
(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,
(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,
(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,

(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,
(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,
(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,
(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,

(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,
(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

20. The method according to Claim 19, wherein the pattern consists of the first response group.

21. The method according to Claim 19, wherein the pattern consists of the second response group.

22. The method according to Claim 19, wherein the pattern consists of the third response group.

23. The method according to Claim 19, wherein the pattern consists of the first response group and the second response group.

24. The method according to Claim 19, wherein the pattern consists of the first response group and the third response group.

25. The method according to Claim 19, wherein the pattern consists of the second response group and the third response group.

26. The method according to Claim 19, wherein the pattern consists of the first response group, the second response group, and the third response group.

27. A method for detecting exposure of a cell to ultraviolet radiation comprising:

(a) measuring the levels of a plurality of RNA molecules in the cell by expression array analysis, comprising:

(i) isolating RNA from the cell post-ultraviolet radiation exposure;

(ii) creating a test expression array through nucleic acid hybridization between a labeled probe complemantary to the RNA and an expression array substrate;

(iii) analyzing the test expression array to create a test expression array data set; and

(iv) comparing the test expression array data set to a control expression array data set; and

(b) analyzing the levels of the plurality of RNA molecules to establish a pattern of expression for the cell, the response of the cell to ultraviolet radiation exposure comprising at least one of the following:

(i) a first response comprising altered expression of at least one nucleic acid molecule encoding a transcription factor protein, at least one nucleic acid molecule encoding a signal transducing protein, and at least one nucleic acid molecule encoding a mitochondrial protein;

(ii) a second response comprising altered expression of at least one nucleic acid molecule molecule encoding a secreted growth factor, at least one nucleic acid encoding a cytokine, and at least one nucleic acid encoding a chemokine; and

(iii) a third response comprising altered expression of at least one nucleic acid molecule encoding an actin-binding protein, at least one nucleic acid molecule encoding a desmosomal protein, and at least one nucleic acid molecule encoding a tubulin protein.

wherein if the pattern of expression for the cell is substantially similar to the response of the cell to ultraviolet radiation, the cell was exposed to ultraviolet radiation.

28. The method according to Claim 27, wherein the pattern consists of the first response.

29. The method according to Claim 27, wherein the pattern consists of the second response.

30. The method according to Claim 27, wherein the pattern consists of the third response.

31. The method according to Claim 27, wherein the pattern consists of the first response and the second response.

32. The method according to Claim 27, wherein the pattern consists of the first response and the third response.

33. The method according to Claim 27, wherein the pattern consists of the second response and the third response.

34. The method according to Claim 27, wherein the pattern consists of the first response, the second response, and the third response.

35. The method according to Claim 27, wherein the cell is selected from the group consisting of a keratinocyte, a Langerhans cell, a melanocyte, and a fibroblast cell.

36. The method according to Claim 27, wherein the ultraviolet radiation exposure comprises energy at a wavelength in the range of about 220 nm to about 440 nm.

37. The method according to Claim 36, wherein the ultraviolet radiation exposure comprises energy at a wavelength of about 290 nm to about 320 nm.

38. The method according to Claim 36, wherein the ultraviolet radiation exposure comprises energy at a wavelength of about 320 to about 440 nm.

39. The method according to Claim 27, wherein the ultraviolet radiation exposure comprises a total energy exposure in the range of about 0.2 mJ/ cm^2 to about 40 mJ/cm^2.

40. The method according to Claim 27, wherein the pattern is further characterized by:

(a) the first response occurring from about 0.5 hours to about 2 hours post-exposure to ultraviolet radiation;

(b) the second response occurring from about 4 hours to about 8 hours post-exposure to ultraviolet radiation; and

(c) the third response occurring from about 16 hours to about 24 hours post-exposure to ultraviolet radiation.

41. The method according to Claim 27, wherein altered expression comprises an increase or decrease in the level of RNA.

42. The method according to Claim 27, wherein:

(a) the first response further comprises altered expression of at least three nucleic acid molecules, each one at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,

(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,
(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,
(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,
(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,
(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,

(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,
(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,
(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response further comprises altered expression of at least three nucleic acid molecules, each one at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M57731 Human gro-beta mRNA, complete cds,
(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),

(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,
(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,
(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,
(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,
(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,

(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),
(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,
(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,
(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,

(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,
(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,

(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114; and

(c) the third response further comprises altered expression of at least three nucleic acid molecules, each one at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,
(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,
(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,

(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,
(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,
(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,
(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,

(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,
(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,
(lvii) M92934 Human connective tissue growth factor, complete cds,
(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.
(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,
(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,

(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),
(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,
(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,
(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,
(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,
(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),

(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,
(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,
(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),
(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,
(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,
(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,

(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,
(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,
(cxl) U30999 Human (memc) mRNA, 3'UTR,
(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,
(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,

(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,
(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,
(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,
(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,

(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,
(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,
(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,
(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,

(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

43. The method according to Claim 42, wherein the pattern consists of the first response group.

44. The method according to Claim 42, wherein the pattern consists of the second response group.

45. The method according to Claim 42, wherein the pattern consists of the third response group.

46. The method according to Claim 42, wherein the pattern consists of the first response group and the second response group.

47. The method according to Claim 42, wherein the pattern consists of the first response group and the third response group.

48. The method according to Claim 42, wherein the pattern consists of the second response group and the third response group.

49. The method according to Claim 42, wherein the pattern consists of the first response group, the second response group, and the third response group.

50. A method for detecting exposure of a cell to ultraviolet radiation, comprising measuring the levels of a plurality of protein molecules in the cell for at least one time point after ultraviolet radiation exposure to establish a pattern of expression,

the response of the cell to ultraviolet radiation exposure comprising at least one of the following:

(a) a first response comprising altered expression of at least one transcription factor protein, at least one signal transduction protein, and at least one mitochondrial protein;

(b) a second response comprising altered expression of at least one secreted growth factor protein, at least one cytokine protein, and at least one chemokine protein; and

(c) a third response comprising altered expression of at least one actin-binding protein, at least one desmosomal protein, and at least one tubulin protein,

wherein if the pattern of expression for the cell is substantially similar to the response of the cell to ultraviolet radiation, the cell was exposed to ultraviolet radiation.

51. The method according to Claim 50, wherein the cell is selected from the group consisting of a keratinocyte, a Langerhans cell, a melanocyte, and a fibroblast cell.

52. The method according to Claim 50, wherein the ultraviolet radiation exposure comprises energy at a wavelength in the range of about 220 nm to about 440 nm.

53. The method according to Claim 52, wherein the ultraviolet radiation exposure comprises energy at a wavelength of about 290 nm to about 320 nm.

54. The method according to Claim 52, wherein the ultraviolet radiation exposure comprises energy at a wavelength of about 320 to about 440 nm.

55. The method according to Claim 50, wherein the ultraviolet radiation exposure comprises energy in the range of about 0.2 mJ/cm^2 to about 40 mJ/cm^2.

56. The method according to Claim 50, wherein the pattern is further characterized by:

(a) the first response occurring from about 0.5 hours to about 2 hours post-exposure to ultraviolet radiation exposure;

(b) the second response occurring from about 0.5 hours to about 2 hours post-exposure to ultraviolet radiation exposure; and

(c) the third response occurring from about 16 hours to about 24 hours post-exposure to ultraviolet radiation exposure.

57. The method according to Claim 50, wherein altered regulation comprises an increase or decrease in protein level.

58. The method according to Claim 50, wherein:

(a) the first response further comprises altered expression of at least three proteins, each one encoded by a nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,
(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,

(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,
(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,
(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,
(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,
(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,

(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,
(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response further comprises altered expression of at least three proteins, each one encoded by a nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M57731 Human gro-beta mRNA, complete cds,
(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,

(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,
(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,
(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,
(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),

(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,
(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,
(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,
(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,

(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,
(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114; and

(c) the third response further comprises altered expression of at least three proteins, each one encoded by a nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,
(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,
(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,
(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,

(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,
(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,
(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,
(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,
(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,

(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,
(lvii) M92934 Human connective tissue growth factor, complete cds,
(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.
(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,
(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,
(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),

(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,
(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,
(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,
(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,
(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),
(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,

(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,
(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),
(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,
(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,
(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,
(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,

(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,
(cxl) U30999 Human (memc) mRNA, 3'UTR,
(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,
(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,

(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,
(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,
(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,

(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,
(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,
(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,
(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

59. The method according to Claim 50, wherein the levels of the plurality of protein molecules are measured by ELISA.

60. A composition of matter comprising:

(a) a plurality of nucleic acid molecules capable of detecting altered expression due to exposure to ultraviolet radiation, the nucleic acid molecules being selected from the groups consisting of:

(i) a first response group comprising altered expression of at least one nucleic acid molecule encoding a transcription factor protein, at least one nucleic acid molecule encoding a signal transducing protein, and at least one nucleic acid molecule encoding a mitochondrial protein;

(ii) a second response group comprising altered expression of at least one nucleic acid molecule encoding a secreted growth factor, at least one nucleic acid molecule encoding a cytokine, and at least one nucleic acid molecule encoding a chemokine; and

(iii) a third response group comprising altered expression of at least one nucleic acid molecule encoding an actin-binding protein, at least one nucleic acid molecule encoding a desmosomal protein, and at least one nucleic acid molecule encoding a tubulin protein; and

(b) a substrate suitable for binding the nucleic acid molecules.

61. The composition of Claim 60, wherein

(a) the first response group consists of a plurality of nucleic acid molecules at least 90% identical to the group of polynucleotides consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,
(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,

(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,
(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,
(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,
(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,
(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,

(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,
(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response group consists of a plurality of nucleic acid molecules at least 90% identical to the group of polynucleotides consisting of:

(i) M57731 Human gro-beta mRNA, complete cds,
(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,
(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,

(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,
(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,
(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),
(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,

(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,
(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,
(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,

(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,
(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114; and

(c) the third response group consists of a plurality of nucleic acid molecules at least 90% identical to the group of polynucleotides consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,
(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,
(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,
(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,

(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,
(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,
(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,
(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,
(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,

(lvii) M92934 Human connective tissue growth factor, complete cds,
(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.
(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,
(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,
(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),
(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,

(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,
(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,
(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,
(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),
(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,
(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,

(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),
(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,
(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,
(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,.
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,
(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,
(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,

(cxl) U30999 Human (memc) mRNA, 3'UTR,
(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,
(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,
(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,

(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,
(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,
(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,

(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,
(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,
(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

62. The composition of Claim 60, wherein the selected nucleic acid molecules have a length of 12 plus N bases, wherein N is a whole integer from 0 to 500.

63. The composition of matter of Claim 62, wherein the selected nucleic acid molecules are about 21 bases in length.

64. The composition of matter of Claim 60 further characterized as an expression array.

65. A method for detecting exposure of a cell to ultraviolet radiation comprising measuring the levels of a plurality of RNA molecules in the cell for at least one time point,

wherein an altered pattern of expression is established and is indicative of ultraviolet radiation exposure, the pattern comprising the following:

(a) a first response comprising an altered pattern of expression of at least one polynucleotide selected from the group consisting of a nucleic acid molecule encoding a transcription factor protein, a nucleic acid molecule encoding a signal transducing protein, and a nucleic acid molecule encoding a mitochondrial protein;

(b) a second response comprising an altered pattern of expression of at least one polynucleotide selected from the group consisting of a nucleic acid molecule encoding a secreted growth factor, a nucleic acid molecule encoding a cytokine, and a nucleic acid molecule encoding a chemokine; and

(c) a third response comprising an altered pattern of expression of at least one polynucleotide selected from the group consisting of a nucleic acid molecule encoding an actin-binding protein, a nucleic acid molecule encoding a desmosomal protein, and a nucleic acid molecule encoding a tubulin protein.

66. The method according to Claim 65, wherein the cell is selected from the group consisting of a keratinocyte, a Langerhans cell, a melanocyte, and a fibroblast cell.

67. The method according to Claim 65, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength in the range of about 220 nm to about 440 nm.

68. The method according to Claim 65, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength of about 290 nm to about 320 nm.

69. The method according to Claim 65, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength in the range of about 320 nm to about 440 nm.

70. The method according to Claim 65, wherein the ultraviolet radiation exposure comprises a total ultraviolet radiation energy exposure in the range of about 0.2 mJ/cm^2 to about 40 mJ/cm^2.

71. The method according to Claim 65, wherein the pattern further comprises the first response being from about 0.5 hours to about two hours post-exposure to ultraviolet radiation.

72. The method according to Claim 65, wherein the pattern further comprises the second response being from about four hours to about eight hours post-exposure to ultraviolet radiation.

73. The method according to Claim 65, wherein the pattern further comprises the third response being from about sixteen hours to about twenty-four hours post-exposure to ultraviolet radiation.

74. The method according to Claim 65, wherein the pattern is further characterized by:

(a) the first response occurring from about 0.5 hours to about two hours post-exposure to ultraviolet radiation;

(b) the second response occurring from about four hours to about eight hours post-exposure to ultraviolet radiation; and

(c) the third response occurring from about sixteen hours to about twenty-four hours post-exposure to ultraviolet radiation.

75. The method according to Claim 65, wherein altered expression comprises an increase or decrease in RNA level.

76. The method according to Claim 65, wherein:

(a) the first response further comprises an altered pattern of expression of at least one nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,
(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,
(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,

(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,
(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,
(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,
(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,
(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,

(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response further comprises an altered pattern of expression of at least one nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of; and

(i) M57731 Human gro-beta mRNA, complete cds,
(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,
(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,
(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,

(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,
(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),
(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,
(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,

(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,
(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,
(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,

(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,
(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114; and

(c) the third response further comprises an altered pattern of expression of at least one nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,

(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,
(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,
(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,
(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,

(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,
(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,
(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,
(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,
(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,
(lvii) M92934 Human connective tissue growth factor, complete cds,

(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.
(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,
(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,
(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),
(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,
(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,

(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,
(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,
(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),
(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,
(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,
(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),

(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,
(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,
(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,
(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,
(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,
(cxl) U30999 Human (memc) mRNA, 3'UTR,

(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,
(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,
(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,

(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,
(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,
(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,

(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,
(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,
(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

77. A method to detect exposure of a cell to ultraviolet radiation comprising:

(a) measuring the levels of a plurality of RNA molecules in the cell by expression array analysis, comprising:

(i) isolating RNA from the cell post ultraviolet radiation exposure;

(ii) creating a test expression array through nucleic acid hybridization between a labled probe complementary to the RNA and an expression array substrate;

(iii) analyzing the test expression array to create a test expression array data set; and

(iv) comparing the test expression array data set to a control expression array data; and

(b) analyzing the levels of the plurality of RNA molecules and thereby establishing a response pattern of the cell,

wherein exposure of the cell to ultraviolet radiation is indicated by the altered pattern of expression comprising the following:

(i) a first response comprising the altered pattern of expression of at least one polynucleotide selected from the group consisting of a nucleic acid molecule encoding a transcription factor protein, a nucleic acid molecule encoding a signal transducing protein, and a nucleic acid molecule encoding a mitochondrial protein;

(ii) a second response comprising the altered pattern of expression of at least one polynucleotide selected from the group consisting of a nucleic acid molecule encoding a secreted growth factor, a nucleic acid molecule encoding a cytokine, and a nucleic acid molecule encoding a chemokine; and

(iii) a third response comprising the altered pattern of expression of at least one polynucleotide selected from the group consisting of a nucleic acid molecule encoding an actin-binding protein, a nucleic acid molecule encoding a desmosomal protein, and a nucleic acid molecule encoding a tubulin protein.

78. The method according to Claim 77, wherein the cell is selected from the group consisting of a keratinocyte, a Langerhans cell, a melanocyte, and a fibroblast cell.

79. The method according to Claim 77, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength in the range of 220 nm to 440 nm.

80. The method according to Claim 77, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength of about 290 nm to about 320 nm.

81. The method according to Claim 77, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength in the range of about 320 nm to about 440 nm.

82. The method according to Claim 77, wherein the ultraviolet radiation exposure comprises a total ultraviolet radiation energy exposure in the range of 0.2 mJ/ cm^2 to 40 mJ/cm^2.

83. The method according to Claim 77, wherein the pattern is further characterized by:

(a) the first response occurring from about 0.5 hours to about 2 hours post-exposure to ultraviolet radiation

(b) the second response occurring from about 4 hours to about 8 hours post-exposure to ultraviolet radiation; and

(c) the third response occurring from about 16 hours to about 24 hours post-exposure to ultraviolet radiation.

84. The method according to Claim 77, wherein altered expression comprises an increase or decrease in the level of RNA.

85. The method according to Claim 77, wherein:

(a) the first response further comprises an altered pattern of expression of at least one nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,
(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,
(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,

(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,
(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,
(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,
(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,
(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,

(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,
(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response further comprises an altered pattern of expression of at least three nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of ; and

(i) M57731 Human gro-beta mRNA, complete cds,
(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,

(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,
(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,
(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,
(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),

(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,
(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,
(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,
(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,

(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,
(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114; and

(c) the third response further comprises an altered pattern of expression of at least one nucleic acid molecule that is at least 90% identical to a polynucleotide selected from the group consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,
(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,
(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,
(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,

(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,
(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,
(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,
(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,
(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,

(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,
(lvii) M92934 Human connective tissue growth factor, complete cds,
(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.
(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,
(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,
(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),

(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,
(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,
(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,
(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,
(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),
(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,

(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,
(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),
(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,
(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,
(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,
(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,

(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,
(cxl) U30999 Human (memc) mRNA, 3'UTR,
(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,
(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,

(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,
(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,
(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,

(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,
(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,
(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,
(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

86. A method for detecting exposure of a cell to ultraviolet radiation comprising measuring the levels of a plurality of proteins in the cell, wherein an altered pattern of expression is established and is indicative of ultraviolet radiation exposure, the pattern comprising the following:

(a) a first response comprising an altered pattern of expression of at least one protein selected from the group consisting of a transcription factor protein, a signal transduction protein, and a mitochondrial protein;

(b) a second response comprising an altered pattern of expression of at least one protein selected from the group consisting of a secreted growth factor protein, a cytokine protein, and a chemokine protein; and

(c) a third response comprising an altered pattern of expression of at least one protein selected from the group consisting of an actin-binding protein, a desmosomal protein, and a tubulin protein.

87. The method according to Claim 86, wherein the cell is selected from the group consisting of a keratinocyte, a Langerhans cell, a melanocyte, and a fibroblast cell.

88. The method according to Claim 86, wherein the ultraviolet radiation exposure comprises:
ultraviolet radiation energy at a wavelength in the range of 220 nm to 440 nm.

89. The method according to Claim 86, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength of about 290 nm to about 320 nm.

90. The method according to Claim 86, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy at a wavelength in the range of about 320 nm to about 440 nm.

91. The method according to Claim 86, wherein the ultraviolet radiation exposure comprises ultraviolet radiation energy in the range of about 0.2 mJ/ cm^2 to about 40 mJ/ cm^2.

92. The method according to Claim 86, wherein the pattern of expression is further characterized by:

(a) the first response occurring from about 0.5 hours to about 2 hours post-exposure to ultraviolet radiation exposure;

(b) the second response occurring from about 0.5 hours to about 2 hours post-exposure to ultraviolet radiation exposure; and

(c) the third response occurring from about 16 hours to about 24 hours post-exposure to ultraviolet radiation exposure.

93. The method according to Claim 86, wherein the altered pattern of expression of comprises an increase or decrease in protein level.

94. The method according to Claim 86, wherein:

(a) the first response further comprises an altered pattern of expression of at least one protein that is at least 90% identical to a polypeptide encoded by a polynucleotide selected from the group consisting of:

(i) M62831 Human transcription factor ETR101 mRNA, complete cds,
(ii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(iii) L04731 *H. sapiens* translocation T(4:11) of ALL-1 gene to chromosome 4,
(iv) X56681 Human junD mRNA,
(v) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,
(vi) L38951 *H. sapiens* importin beta subunit mRNA, complete cds,
(vii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(viii) M72885 Human GOS2 gene, 5' flank and cds,
(ix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(x) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial,
(xi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(xii) D86988 Human mRNA for KIAA0221 gene, complete cds,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xiv) U62317 Chromosome 22q13 BAC Clone CIT987SK-384D8 complete sequence,
(xv) X04412 Human mRNA for plasma gelsolin,
(xvi) L27706 Human chaperonin protein (Tcp20) gene complete cds,
(xvii) X61123 Human BTG1 mRNA,
(xviii) M60974growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xix) L19437 Human transaldolase mRNA containing transposable element, complete cds,
(xx) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(xxi) D90086 Human pyruvate dehydrogenase (EC 1.2.4.1) beta subunit gene, exons 1-10,
(xxii) M34182 Human testis-specific protein kinase gamma-subunit mRNA, complete cds,

(xxiii) L16862 *H. sapiens* G protein-coupled receptor kinase (GRK6) mRNA, complete cds,
(xxiv) D13705 Human mRNA for fatty acids omega-hydroxylase (cytochrome P-450HKV), complete cd,
(xxv) U37122 Human adducin gamma subunit mRNA, complete cds,
(xxvi) D45906 *H. sapiens* mRNA for LIMK-2, complete cds,
(xxvii) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(xxviii) D87438 Human mRNA for KIAA0251 gene, partial cds,
(xxix) L37042 *H. sapiens* casein kinase I alpha isoform (CSNK1A1) mRNA, complete cds,
(xxx) D14043 Human mRNA for MGC-24, complete cds,
(xxxi) D13988 Human rab GDI mRNA, complete cds,
(xxxii) U28480 Uncoupling Protein Uc,
(xxxiii) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(xxxiv) M55265 Human casein kinase II alpha subunit mRNA, complete cds,
(xxxv) M96803 Human general beta-spectrin (SPTBN1) mRNA, complete cds,
(xxxvi) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox P,
(xxxvii) D87442 Human mRNA for KIAA0253 gene, partial cds,
(xxxviii) J03161 Human serum response factor (SRF) mRNA, complete cds,
(xxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(xl) U17327 Human neuronal nitric oxide synthase (NOS1) mRNA, complete cds,
(xli) D86966 Human mRNA for KIAA0211 gene, complete cds,
(xlii) D85527 *H. sapiens* mRNA for LIM domain, partial cds,
(xliii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(xliv) X59434 Human rohu mRNA for rhodanese,
(xlv) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds, and
(xlvi) J05211 Desmoplakin;

(b) the second response further comprises an altered pattern of expression of at least one protein that is at least 90% identical to a polypeptide encoded by a polynucleotide selected from the group consisting of; and

(i) M57731 Human gro-beta mRNA, complete cds,
(ii) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(iii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(iv) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(v) M72885 Human GOS2 gene, 5' flank and cds,
(vi) M62831 Human transcription factor ETR101 mRNA, complete cds,
(vii) M28130 Human interleukin 8 (IL8) gene, complete cds,
(viii) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(ix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(x) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,
(xi) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xii) X56681 Human junD mRNA,
(xiii) S75762 Oncogene Tls/Chop, Fusion Activate,
(xiv) M84739 Human autoantigen calreticulin mRNA, complete cds,
(xv) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(xvi) V00599 Tubulin, Bet,
(xvii) X70326 Macmarck,
(xviii) D10923 Human mRNA for HM74,
(xix) D64142 Human mRNA for histone H1x, complete cds,
(xx) D86974 Human mRNA for KIAA0220 gene, partial cds;
(xxi) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(xxii) X68277 *H. sapiens* CL 100 mRNA for protein tyrosine phosphatase,
(xxiii) L13391 Human helix-loop-helix basic phosphoprotein (G0S8) gene, complete cds,
(xxiv) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(xxv) U40369 Human spermidine/spermine N1-acetyltransferase (SSAT) gene, complete cds,
(xxvi) X52560 Nuclear Factor Nf-Il,
(xxvii) X61123 Human BTG1 mRNA,
(xxviii) U20734 Human transcription factor junB (junB) gene, 5' region and complete cds,

(xxix) U35048 Human TSC-22 protein mRNA, complete cds,
(xxx) M69043 *H. sapiens* MAD-3 mRNA encoding IkB-like activity, complete cds,
(xxxi) X51345 Human jun-B mRNA for JUN-B protein,
(xxxii) S68616 Na+/H+ exchanger NHE-1 isoform [human, heart, mRNA, 4516 nt],
(xxxiii) X89750 *H. sapiens* mRNA for TGIF protein,
(xxxiv) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein,
(xxxv) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(xxxvi) X52541 Human mRNA for early growth response protein 1 (hEGR1),
(xxxvii) D50683 *H. sapiens* mRNA for TGF-betaIIR alpha, complete cds,
(xxxviii) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(xxxix) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(xl) U05875 Human clone pSK1 interferon gamma receptor accessory factor-1 (AF-1) mRNA, comp,
(xli) L19314 Human HRY gene, complete cds,
(xlii) M30703 Human amphiregulin (AR) gene, exon 6, clones lambda-ARH(6,12),
(xliii) U34252 Human gamma-aminobutyraldehyde dehydrogenase mRNA, complete cds,
(xliv) S78825 Id1,
(xlv) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(xlvi) U41766 Human metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9) mRNA,
(xlvii) U89336 Human HLA class III region containing NOTCH4 gene, partial sequence, homeobox PB,
(xlviii) M69181 Human nonmuscle myosin heavy chain-B (MYH10) mRNA, partial cds,
(xlix) D15050 Human mRNA for transcription factor AREB6, complete cds,
(l) U28386 Human nuclear localization sequence receptor hSRP1alpha mRNA, complete cds,
(li) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(lii) X64330 *H. sapiens* mRNA for ATP-citrate lyase,
(liii) U37122 Human adducin gamma subunit mRNA, complete cds,
(liv) X74008 *H. sapiens* mRNA for protein phosphatase 1 gamma,
(lv) U60205 Human methyl sterol oxidase (ERG25) mRNA, complete cds,

(lvi) X76534 *H. sapiens* NMB mRNA,
(lvii) D87071 Human mRNA for KIAA0233 gene, complete cds,
(lviii) U90716 Human cell surface protein HCAR mRNA, complete cds,
(lix) M91083 Human DNA-binding protein (HRC1) mRNA, complete cds,
(lx) U29607 Human methionine aminopeptidase mRNA, complete cds,
(lxi) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(lxii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(lxiii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(lxiv) X12953 Human rab2 mRNA, YPT1-related and member of ras family,
(lxv) M60483 Human protein phosphatase 2A catalytic subunit-alpha gene, complete cds,
(lxvi) U72649 Human BTG2 (BTG2) mRNA, complete cds,
(lxvii) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(lxviii) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(lxix) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(lxxi) S74017 Nrf2=NF-E2-like basic leucine zipper transcriptional activator [human, hemin-in,
(lxxii) X87241 *H. sapiens* mRNA for hFat protein,
(lxxiii) X52425 Human IL-4-R mRNA for the interleukin 4 receptor,
(lxxiv) D79994 Human mRNA for KIAA0172 gene, partial cds,
(lxxv) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(lxxvi) M13829 Human putative raf related protein (pks/a-raf) mRNA, partial cds,
(lxxvii) X78992 *H. sapiens* ERF-2 mRNA,
(lxxviii) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(lxxix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(lxxx) X52611 Human mRNA for transcription factor AP-2,
(lxxxi) U28749 Human high-mobility group phosphoprotein isoform I-C (HMGIC) mRNA, complete cds,

(lxxxii) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(lxxxiii) L26336 Heat Shock Protein, 70 Kda (Gb:Y00371,
(lxxxiv) L08246 Human myeloid cell differentiation protein (MCL1) mRNA,
(lxxxv) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic,leukemia cells
(lxxxvi) J05211 Desmoplakin ,
(lxxxvii) L00352 Human low density lipoprotein receptor gene, exon 18,
(lxxxviii) Y13647 Stearoyl-Coenzymea Desaturase,
(lxxxix) X77794 *H. sapiens* mRNA for cyclin G1,
(xc) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(xci) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(xcii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(xciii) X80692 H. sapiens ERK3 mRNA, and
(xciv) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114; and

(c) the third response further comprises an altered pattern of expression of at least one protein that is at least 90% identical to a polypeptide encoded by a polynucleotide selected from the group consisting of:

(i) M20030 Human small proline rich protein (sprII) mRNA, clone 930,
(ii) X53065,
(iii) M13903 Human involucrin gene, exon 2,
(iv) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(v) L10343 Huma elafin gene, complete cds,
(vi) M63573 Human secreted cyclophilin-like protein (SCYLP) mRNA, complete cds,
(vii) M21302 Human small proline rich protein (sprII) mRNA, clone 174N,
(viii) Y00787 Human mRNA for MDNCF (monocyte-derived neutrophil chemotactic factor),
(ix) X57985 *H. sapiens* genes for histones H2B.1 and H2A,
(x) L05188 *H. sapiens* small proline-rich protein 2 (SPRR2B) gene, complete cds,
(xi) X70326 Macmarcks,
(xii) X67325 *H. sapiens* p27 mRNA,
(xiii) L19779 *H. sapiens* histone H2A.2 mRNA, complete cds,

(xiv) S81914 IEX-1=radiation-inducible immediate-early gene [human, placenta, mRNA Partial, 1,
(xv) D45248 Human mRNA for proteasome activator hPA28 subunit beta, complete cds,
(xvi) Z22548 *H. sapiens* thiol-specific antioxidant protein mRNA,
(xvii) M22918 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Non-Muscle, Alt. Splice,
(xviii) X06956 Tubulin, Alpha 1, Isoform 44,
(xix) V00594 Human mRNA for metallothionein from cadmium-treated cells,
(xx) M80254 *H. sapiens* cyclophilin isoform (hCyP3) mRNA, complete cds,
(xxi) U04636 Human cyclooxygenase-2 (hCox-2) gene, complete cds,
(xxii) Z14244 *H. sapiens* coxVIIb mRNA for cytochrome c oxidase subunit VIIb,
(xxiii) X99920 *H. sapiens* mRNA for S100 calcium-binding protein A13,
(xxiv) U62800 Human cystatin M (CST6) mRNA, complete cds,
(xxv) L08069 Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds,
(xxvi) L20688 Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds,
(xxvii) M13755 Human interferon-induced 17-kDa/15-kDa protein mRNA, complete cds,
(xxviii) M60278 Human heparin-binding EGF-like growth factor mRNA, complete cds,
(xxix) AF001294 *H. sapiens* IPL (IPL) mRNA, complete cds,
(xxx) X54489 Human gene for melanoma growth stimulatory activity (MGSA),
(xxxi) M21186 Human neutrophil cytochrome b light chain p22 phagocyte b-cytochrome mRNA, compl,
(xxxii) D42040 Human mRNA for KIAA9001 gene, complete cds,
(xxxiii) V00599 Tubulin, Beta,
(xxxiv) U37690 Human RNA polymerase II subunit (hsRPB10) mRNA, complete cds,
(xxxv) M21005 Human migration inhibitory factor-related protein 8 (MRP8) gene, complete cds,
(xxxvi) M37583 Human histone (H2A.Z) mRNA, complete cds,
(xxxvii) Z49989 *H. sapiens* mRNA for smoothelin,
(xxxviii) L24564 Human Rad mRNA, complete cds,
(xxxix) D49824 Human HLA-B null allele mRNA,
(xl) M59465 Human tumor necrosis factor alpha inducible protein A20 mRNA, complete cds,

(xli) S54005 thymosin beta-10 [human, metastatic melanoma cell line, mRNA, 453 nt],
(xlii) Z49254 *H. sapiens* L23-related mRNA,
(xliii) M22919 Myosin, Light Chain, Alkali, Smooth Muscle (Gb:U02629), Smooth Muscle, Alt. Spli,
(xliv) U70660 Human copper transport protein HAH1 (HAH1) mRNA, complete cds,
(xlv) AF006084 *H. sapiens* Arp2/3 protein complex subunit p41-Arc (ARC41) mRNA, complete cds,
(xlvi) X62083 *H. sapiens* mRNA for Drosophila female sterile homeotic (FSH) homologue,
(xlvii) D86974 Human mRNA for KIAA0220 gene, partial cds,
(xlviii) M72885 Human GOS2 gene, 5' flank and cds,
(xlix) S80437 fatty acid synthase {3' region} [human, breast and HepG2 cells, mRNA Partial, 22,
(l) X04654 Human mRNA for U1 RNA-associated 70K protein,
(li) t M26311 Human cystic fibrosis antigen mRNA, complete cds,
(lii) X14850 Human H2A.X mRNA encoding histone H2A.X,
(liii) M14328 Human alpha enolase mRNA, complete cds,
(liv) U07919 Human aldehyde dehydrogenase 6 mRNA, complete cds,
(lv) M28130 Human interleukin 8 (IL8) gene, complete cds,
(lvi) Z21507 *H. sapiens* EF-1delta gene encoding human elongation factor-1-delta,
(lvii) M92934 Human connective tissue growth factor, complete cds,
(lviii) M27436 Human tissue factor gene, complete cds, with a Alu repetitive sequence in the 3',
(lix) X74874 *H. sapiens* gene for RNA pol II largest subunit, exon 1,
(lx) X57351 Human 1-8D gene from interferon-inducible gene family,
(lxi) X52979 Human gene for small nuclear ribonucleoproteins SmB and SmB',
(lxii) U41515 Human deleted in split hand/split foot 1 (DSS1) mRNA, complete cds,
(lxiii) D28235 Human PTGS2 gene for prostaglandin endoperoxide synthase-2, complete cds,
(lxiv) Y00503 Human mRNA for keratin 19.
(lxv) M57731 Human gro-beta mRNA, complete cds,
(lxvi) D50840 *H. sapiens* mRNA for ceramide glucosyltransferase, complete cds,
(lxvii) U52101 Human YMP mRNA, complete cds.

(lxviii) D13413 Human mRNA for tumor-associated 120 kDa nuclear protein p120, partial cds(carbox,
(lxix) L42379 *H. sapiens* bone-derived growth factor (BPGF-1) mRNA, complete cds,
(lxx) X52426 *H. sapiens* mRNA for cytokeratin 13,
(lxxi) J04456 Human 14 kd lectin mRNA, complete cds,
(lxxii) S78771 NAT=CpG island-associated gene [human, mRNA, 1741 nt],
(lxxiii) M26730 Human mitochondrial ubiquinone-binding protein (QP) gene, exon 4,
(lxxiv) U26727 Human p16INK4/MTS1 mRNA, complete cds,
(lxxv) X92896 *H. sapiens* mRNA for ITBA2 protein,
(lxxvi) Z69043 *H. sapiens* mRNA translocon-associated protein delta subunit precursor,
(lxxvii) L76568 *H. sapiens* excision and cross link repair protein (ERCC4) gene, complete genom,
(lxxviii) M12125 Human fibroblast muscle-type tropomyosin mRNA, complete cds,
(lxxix) U09937 Human urokinase-type plasminogen receptor, exon 7,
(lxxx) X15822 Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1.),
(lxxxi) M34516 Human omega light chain protein 14.1 (Ig lambda chain related) gene, exon 3,
(lxxxii) U53830 *H. sapiens* interferon regulatory factor 7A mRNA, complete cds,
(lxxxiii) X82693 *H. sapiens* mRNA for E48 antigen,
(lxxxiv) M58026 Human NB-1 mRNA, complete cds,
(lxxxv) M90657 Human tumor antigen (L6) mRNA, complete cds,
(lxxxvi) X57579 *H. sapiens* activin beta-A subunit (exon 2),
(lxxxvii) D38251 Human mRNA for RPB5 (XAP4), complete cds,
(lxxxviii) D89667 *H. sapiens* mRNA for c-myc binding protein, complete cds,
(lxxxix) AB000584 *H. sapiens* mRNA for TGF-beta superfamily protein, complete cds,
(xc) L76200 Human guanylate kinase (GUK1) mRNA, complete cds,
(xci) J04794 Human aldehyde reductase mRNA, complete cds,
(xcii) X52882 Human t-complex polypeptide 1 gene,
(xciii) M79463 Human PML-2 mRNA, complete CDS,
(xciv) Y09022 *H. sapiens* mRNA for Not56-like protein,
(xcv) M12529 Human apolipoprotein E mRNA, complete cds,

(xcvi) X71129 *H. sapiens* mRNA for electron transfer flavoprotein beta subunit,
(xcvii) X83416 *H. sapiens* PrP gene, exon 2,
(xcviii) D89052 *H. sapiens* mRNA for proton-ATPase-like protein, complete cds,
(xcix) M60974 Human growth arrest and DNA-damage-inducible protein (gadd45) mRNA, complete cds,
(c) M16364 Human creatine kinase-B mRNA, complete cds,
(ci) D38305 Human mRNA for Tob, complete cds,
(cii) X87679 Major Histocompatibility Complex, Class I, E (Gb:M21533),
(ciii) Z29505 *H. sapiens* mRNA for nucleic acid binding protein sub2.3,
(civ) K02574,
(cv) U09813 Human mitochondrial ATP synthase subunit 9, P3 gene copy, mRNA, nuclear gene enc,
(cvi) X67951 *H. sapiens* mRNA for proliferation-associated gene (pag),
(cvii) J04611 Human lupus p70 (Ku) autoantigen protein mRNA, complete cds,
(cviii) U09578 *H. sapiens* MAPKAP kinase (3pK) mRNA, complete cds,
(cix) X53800 Human mRNA for macrophage inflammatory protein-2beta (MIP2beta),
(cx) V00599 Tubulin, Beta 2,
(cxi) U69126 Human FUSE binding protein 2 (FBP2) mRNA, partial cds,
(cxii) X53416 Human mRNA for actin-binding protein (filamin) (ABP-280),
(cxiii) U90546 Human butyrophilin (BTF4) mRNA, complete cds,
(cxiv) M58459 Human ribosomal protein (RPS4Y) isoform mRNA, complete cds,
(cxv) M19961 Human cytochrome c oxidase subunit Vb (coxVb) mRNA, complete cds,
(cxvi) U65579 Human mitochondrial NADH dehydrogenase-ubiquinone Fe-S protein 8, 23 kDa subunit,
(cxvii) X77794 *H. sapiens* mRNA for cyclin G1,
(cxviii) M29064 Human hnRNP B1 protein mRNA,
(cxix) D21853 Human mRNA for KIAA0111 gene, complete cds,
(cxx) X78687 *H. sapiens* G9 gene encoding sialidase,
(cxxi) X15729 Human mRNA for nuclear p68 protein,
(cxxii) X04828 Human mRNA for G(i) protein alpha-subunit (adenylate cyclase inhibiting GTP-bind,
(cxxiii) L27943 *H. sapiens* cytidine deaminase (CDA) mRNA, complete cds,

(cxxiv) L40391 *H. sapiens* (clone s153) mRNA fragment,
(cxxv) D42123 *H. sapiens* mRNA for ESP1/CRP2, complete cds,
(cxxvi) X74104 *H. sapiens* mRNA for TRAP beta subunit,
(cxxvii) M84332 Human ADP-ribosylation factor 1 gene, exons 2-5,
(cxxviii) L37127 *H. sapiens* RNA polymerase II mRNA, complete cds,
(cxxix) M92843 *H. sapiens* zinc finger transcriptional regulator mRNA, complete cds,
(cxxx) U07664 Human HB9 homeobox gene, exons 2 and 3 and complete cds,
(cxxxi) L48546 *H. sapiens* tuberin (TSC2) gene, exons 38, 39, 40 and 41,
(cxxxii) X53586 Human mRNA for integrin alpha 6,
(cxxxiii) t D21852 Human mRNA for KIAA0029 gene, partial cds,
(cxxxiv) L11066 Human mRNA sequence,
(cxxxv) J04444 Human cytochrome c-1 gene, complete cds,
(cxxxvi) M95787 Human 22kDa smooth muscle protein (SM22) mRNA, complete cds,
(cxxxvii) L07517 Mucin 6, Gastric (Gb:L07517),
(cxxxviii) X91247 *H. sapiens* mRNA for thioredoxin reductase,
(cxxxix) L11672 Human Kruppel related zinc finger protein (HTF10) mRNA, complete cds,
(cxl) U30999 Human (memc) mRNA, 3'UTR,
(cxli) U01337 Human Ser/Thr protein kinase (A-RAF-1) gene, complete cds,
(cxlii) U28480 Uncoupling Protein Ucp,
(cxliii) X12794 Human v-erbA related ear-2 gene,
(cxliv) L22005 Human ubiquitin conjugating enzyme mRNA, partial cds,
(cxlv) M12886 Human T-cell receptor active beta-chain mRNA, complete cds,
(cxlvi) Y08915 *H. sapiens* mRNA for alpha 4 protein,
(cxlvii) M24547 Amyloid Beta (A4) Precursor Protein, Alt. Splice 2, A4(751),
(cxlviii) X76717 *H. sapiens* MT-1l mRNA,
(cxlix) M64347 Human novel growth factor receptor mRNA, 3' cds,
(cl) X05409 Human RNA for mitochondrial aldehyde dehydrogenase I ALDH I (EC 1.2.1.3),
(cli) D87469 Human mRNA for KIAA0279 gene, partial cds,
(clii) M58603 Human nuclear factor kappa-B DNA binding subunit (NF-kappa-B) mRNA, complete cds,

(cliii) M76482 Human 130-kD pemphigus vulgaris antigen mRNA, complete cds,
(cliv) X06323 Human MRL3 mRNA for ribosomal protein L3 homologue (MRL3 = mammalian ribosome L,
(clv) X78992 *H. sapiens* ERF-2 mRNA,
(clvi) L41351 *H. sapiens* prostasin mRNA, complete cds,
(clvii) X75342 *H. sapiens* SHB mRNA,
(clviii) U83115 Human non-lens beta gamma-crystallin like protein (AIM1) mRNA, partial cds,
(clix) U88629 Human RNA polymerase II elongation factor ELL2, complete cds,
(clx) S78825 Id1,
(clxi) U28811 Human cysteine-rich fibroblast growth factor receptor (CFR-1) mRNA, complete cds,
(clxii) M58286 *H. sapiens* tumor necrosis factor receptor mRNA, complete cds,
(clxiii) D78129 *H. sapiens* mRNA for squalene epoxidase, partial cds,
(clxiv) D14874 *H. sapiens* mRNA for adrenomedullin precursor, complete cds,
(clxv) Z26317 *H. sapiens* mRNA for desmoglein 2,
(clxvi) L19267 *H. sapiens* 59 protein mRNA, 3' end,
(clxvii) J00120 Proto-Oncogene C-Myc, Alt. Splice 3, Orf 114,
(clxviii) U33821 Human tax1-binding protein TXBP151 mRNA, complete cds,
(clxix) U52100 Human XMP mRNA, complete cds,
(clxx) L31801 *H. sapiens* monocarboxylate transporter 1 (SLC16A1) mRNA, complete cds,
(clxxi) L00058 Human (GH) germline c-myc proto-oncogene, exon 3 and 3' flank,
(clxxii) U52426 *H. sapiens* GOK (STIM1) mRNA, complete cds,
(clxxiii) M80244 Human E16 mRNA, complete cds,
(clxxiv) U56418 Human lysophosphatidic acid acyltransferase-beta mRNA, complete cds,
(clxxv) L38490 *H. sapiens* ADP-ribosylation factor mRNA, complete cds,
(clxxvi) U14603 Human protein-tyrosine phosphatase (HU-PP-1) mRNA, partial sequence,
(clxxvii) L77886 Human protein tyrosine phosphatase mRNA, complete cds,
(clxxviii) M38258 Human retinoic acid receptor gamma 1 mRNA, complete cds,
(clxxix) X89750 *H. sapiens* mRNA for TGIF protein,
(clxxx) D85429 *H. sapiens* gene for heat shock protein 40, complete cds,
(clxxxi) J05211 Desmoplakin I,

(clxxxii) M31627 Human X box binding protein-1 (XBP-1) mRNA, complete cds,
(clxxxiii) X80695 *H. sapiens* OXA1Hs mRNA,
(clxxxiv) M54915 Human h-pim-1 protein (h-pim-1) mRNA, complete cds,
(clxxxv) D83777 Human mRNA for KIAA0193 gene, complete cds,
(clxxxvi) D31883 Human mRNA for KIAA0059 gene, complete cds,
(clxxxvii) U00968 Human SREBP-1 mRNA, complete cds,
(clxxxviii) K03195 Human (HepG2) glucose transporter gene mRNA, complete cds,
(clxxxix) D86965 Human mRNA for KIAA0210 gene, complete cds,
(cxc) Z30643 *H. sapiens* mRNA for chloride channel (putative) 2139bp,
(cxci) D14520 Human mRNA for GC-Box binding protein BTEB2, complete cds,
(cxcii) D87462 Human mRNA for KIAA0272 gene, partial cds,
(cxciii) X80692 *H. sapiens* ERK3 mRNA,
(cxciv) X90858 *H. sapiens* mRNA for uridine phosphorylase,
(cxcv) M57763 Human ADP-ribosylation factor (hARF6) mRNA, complete cds,
(cxcvi) X92720 *H. sapiens* mRNA for phosphoenolpyruvate carboxykinase,
(cxcvii) M81601 Human transcription elongation factor (SII) mRNA, complete cds,
(cxcviii) X52611 Human mRNA for transcription factor AP-2,
(cxcix) U09587 Human glycyl-tRNA synthetase mRNA, complete cds,
(cc) U14550 Human sialyltransferase SThM (sthm) mRNA, complete cds,
(cci) D90209 Human mRNA for DNA binding protein TAXREB67,
(ccii) X77366 *H. sapiens* HBZ17 mRNA,
(cciii) X76534 *H. sapiens* NMB mRNA,
(cciv) U37519 Human aldehyde dehydrogenase (ALDH8) mRNA, complete cds,
(ccv) M83667 Human NF-IL6-beta protein mRNA, complete cds,
(ccvi) U53347 Human neutral amino acid transporter B mRNA, complete cds,
(ccvii) L09229 Human long-chain acyl-coenzyme A synthetase (FACL1) mRNA, complete cds,
(ccviii) S73591 brain-expressed HHCPA78 homolog [human, HL-60 acute promyelocytic leukemia cells,

(ccix) M13929 Human c-myc-P64 mRNA, initiating from promoter P0, (HLmyc2.5) partial cds,
(ccx) M55268 Human casein kinase II alpha' subunit mRNA, complete cds,
(ccxi) M77836 Human pyrroline 5-carboxylate reductase mRNA, complete cds,
(ccxii) HG2724-HT2820_at S75762 Oncogene Tls/Chop, Fusion Activated,
(ccxiii) U72066 *H. sapiens* CtBP interacting protein CtIP (CtIP) mRNA, complete cds,
(ccxiv) U42031 Human 54 kDa progesterone receptor-associated immunophilin FKBP54 mRNA, partial,
(ccxv) M27396 Human asparagine synthetase mRNA, complete cds,
(ccxvi) X01630 Human mRNA for argininosuccinate synthetase,
(ccxvii) D32050 Human mRNA for alanyl-tRNA synthetase, complete cds,
(ccxviii) M90656 Human gamma-glutamylcysteine synthetase (GCS) mRNA, complete cds,
(ccxix) J04102 Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds, and
(ccxx) X69111 *H. sapiens* HLH 1R21 mRNA for helix-loop-helix protein.

95. The method according to Claim 86, wherein the levels of the plurality of proteins are measured by ELISA.

96. A method for detecting exposure of a cell to ultraviolet radiation by screening for a response of the cell to ultraviolet radiation exposure, the response being an altered pattern of expression determined by gene expression array analysis, comprising:

(a) measuring the levels of a plurality of RNA molecules in the cell for at least one time point after ultraviolet radiation exposure to establish a test pattern of expression; and

(b) comparing the test pattern of expression the response of a cell to ultraviolet radiation exposure; and

wherein if the pattern of expression for the cell is substantially similar to the response of the cell to ultraviolet radiation, the cell was exposed to ultraviolet radiation.

97. A method for detecting exposure of a cell to ultraviolet radiation by screening for a response of the cell to ultraviolet radiation exposure, the response being an altered pattern of expression determined by gene expression array analysis, comprising:

(a) measuring the levels of a plurality of proteins in the cell for at least one time point after ultraviolet radiation exposure to establish a test pattern of expression; and

(b) comparing the test pattern of expression the response of a cell to ultraviolet radiation exposure; and

(c) wherein if the pattern of expression for the cell is substantially similar to the response of the cell to ultraviolet radiation, the cell was exposed to ultraviolet radiation.